UNITED STATES MARINE CORPS FIELD ARTILLERY FIRE CONTROLMANS COURSE

MANUAL MISSION PROCESSING

- OBJECTIVE: TO CONDUCT FIRE MISSION PROCESSING

PERSONNEL IN THE FDC

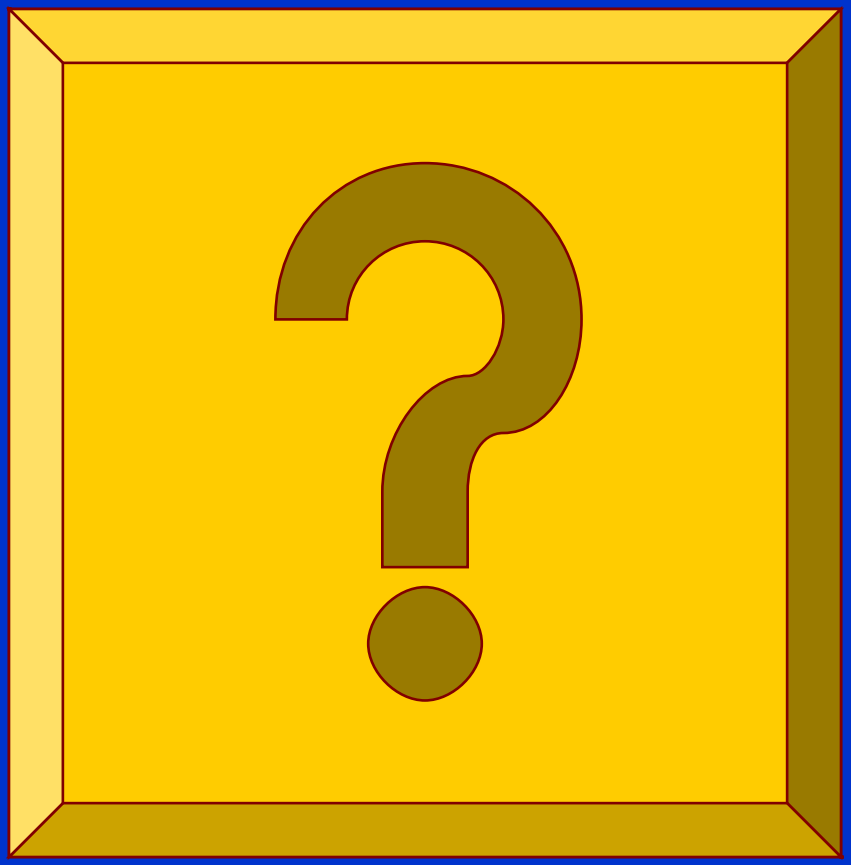
- **FIRE DIRECTION OFFICER(FDO): HAS FINAL RESPONSIBILITY FOR THE FDC. NORMALLY A LT.**
- **OPERATIONS CHIEF(OPS CHIEF): THE TECHNICAL EXPERT IN THE FDC. NORMALLY A SSGT.**
- **COMPUTER: THE DIRECT LINK BETWEEN THE FDC AND THE GUNLINE. HE IS RESPONSIBLE FOR DETERMINING FIRING DATA AND ANNOUNCING FIRING COMMANDS. THIS MARINE IS NORMALLY AN NCO.**
- **HORIZONTAL CONTROL OPERATOR (HCO): RESPONSIBLE FOR DETERMINING AND ANNOUNCING CHART DATA. NORMALLY A LCPL OR BELOW**
- **VERTICAL CONTROL OPERATOR (VCO): DETERMINES ALTITUDE AND VERTICAL CORRECTIONS. NORMALLY A LCPL OR BELOW**

PERSONNEL (CONTINUED)

- **RADIO TELEPHONE OPERATOR (RTO):**
  THIS MARINE NORMALLY HAS A DIFFERENT MOS AND IS RESPONSIBLE FOR MAINTAINING COMMUNICATIONS WITH WHOEVER WE NEED TO TALK TO. OBSERVERS, HIGHER HQ's, OTHER SUPPORTING UNITS AND OTHER STATIONS AS DIRECTED.

ADVANCE PARTY MAN

- THE ADVANCE PARTY MAN IS USUALLY A LCPL OR BELOW.
  - PROVIDES SECURITY FOR THE ADVANCE PARTY'S RECON OF A NEW POSITION.
  - DETERMINES THE LOCATION OF THE FDC IN THE NEW POSITION, IAW LOCAL SECURITY SOP
  - PROVIDES THE FDC WITH THE INITIAL GUN DATA



POSITION OCCUPATION

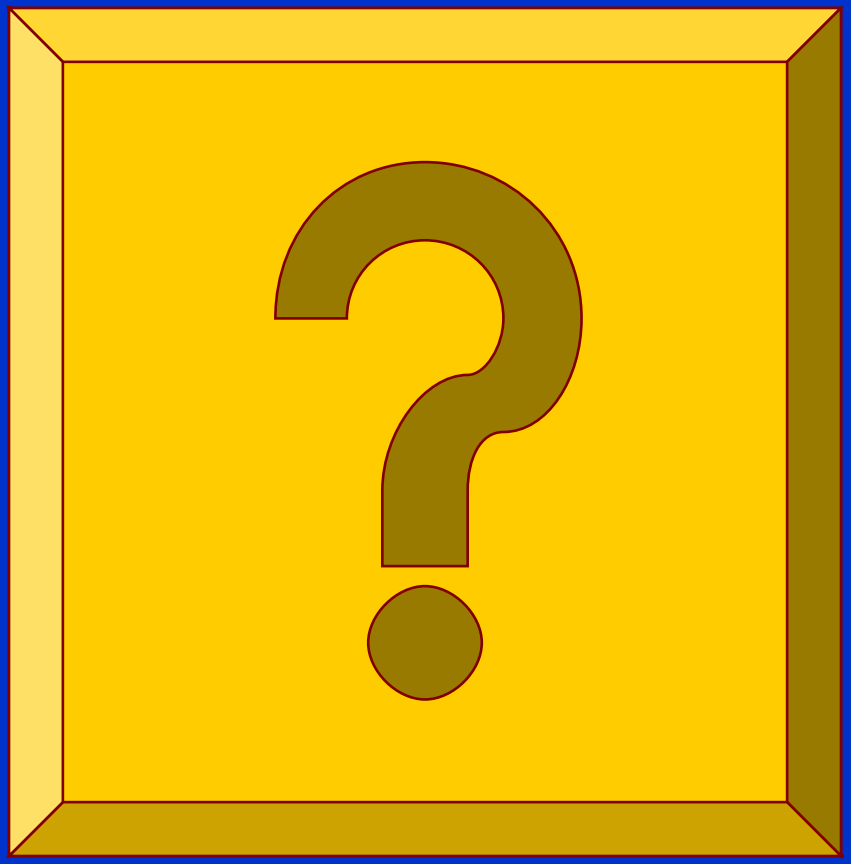
- UPON OCCUPATION OF A NEW POSITION THE PRIMARY GOAL OF THE FDC IS THE CAPABILITY TO FIRE. THERE ARE MANY THINGS HAPPENING AT THE SAME TIME TO ACCOMPLISH THIS MISSION:
  - **THE RTO IS ESTABLISHING COMM WITH OBSERVERS AND HIGHER HQ's**
  - **THE HCO AND VCO CONSTRUCT THEIR CHARTS AND PERFORM CHART CHECKS**
  - **THE ADVANCE PARTY MARINE BRINGS HIS EQUIPMENT TO THE FDC AND INFORMS THE OPS CHIEF OF THE XO'S REPORT AND ANY ADDITIONAL INFORMATION**
  - **THE COMPUTER SETS UP HIS AREA AND ESTABLISHES COMM WITH THE GUNLINE**

POSITION OCCUPATION

- OPERATIONS CHIEF PREPARES THE FIRE CAPABILITIES REPORT AND TRANSMITS IT TO HIGHER HEADQUARTERS

- AT THE SAME TIME AS THIS IS HAPPENING WE CANNOT FORGET THAT WE ARE MARINES AND AS SUCH WE HAVE TO BEGIN POSITION IMPROVEMENT.

  - CAMOUFLAGE NETS ARE SET UP OVER THE FDC
  - FIGHTING HOLES ARE PREPARED IAW SECURITY SOP'S
  - FIRE PLANS AND PREPLANNED TARGETS ARE PREPARED AND UPDATED
  - MULTIPLOT GFT SETTINGS AND MET DERIVED CORRECTIONS ARE DETERMINED
  - AVERAGE SITE MAP IS PREPARED BY THE VCO



FOUR VITAL MESSAGES

- CFF
- FIRE ORDER
- MTO
- FIRE COMMANDS

CALL FOR FIRE

THE CALL FOR FIRE (CFF) IS DIVIDED INTO SIX ELEMENTS

1. **OBSERVER IDENTIFICATION**
2. **WARNING ORDER**
3. **TARGET LOCATION**
4. **TARGET DESCRIPTION**
5. **METHOD OF ENGAGEMENT**
6. **METHOD OF FIRE AND CONTROL**

THE SIX ELEMENTS ARE SENT TO THE FDC IN THREE SHORT RADIO TRANSMISSIONS.

FIRST TRANSMISSION

THIS TRANSMISSION CONTAINS THE FIRST TWO ELEMENTS OF THE CFF.

1. OBSERVER IDENTIFICATION

2. WARNING ORDER

TELLS THE FDC HOW THE OBS WISHES TO BRING FIRE ONTO THE TGT, SIZE OF THE UNIT TO FIRE IN EFFECT, AND METHOD OF TGT LOCATION.

A. <u>TYPE OF MISSION</u> (MUST BE ANNOUNCED)

1. **FIRE FOR EFFECT (FFE)**
2. **ADJUST FIRE (AF)**
3. **IMMEDIATE SUPPRESSION (IS)**
4. **SUPPRESSION (S)**

B. SIZE OF UNIT TO FIRE FOR EFFECT

1. **BATTERY * (BTRY)**
2. **BATTALION (BN)**

C. METHOD OF TGT LOCATION

1. **GRID ***
2. **POLAR**
3. **LASER POLAR**
4. **SHIFT**

EXAMPLE FIRST TRANSMISSION:

(YOU THIS IS ME, TYPE OF MISSION, EOT)

N81 THIS IS W11, AF, POLAR, OVER
W11 THIS IS N81, AF, POLAR, OUT

SECOND TRANSMISSION

THIS TRANSMISSION ONLY CONTAINS THE THIRD ELEMENT OF THE CFF.

3. TARGET LOCATION.

A. GRID.

B. POLAR.

C. SHIFT.

(EXAMPLE CONTINUED)

N81 THIS IS W11, AF, POLAR, OVER
W11 THIS IS N81, AF, POLAR, OUT

DIR 0610, DIS 2000, U40, OVER
DIR 0610, DIS 2000, U40, OUT

THIRD TRANSMISSION

THE LAST TRANSMISSION CONTAINS THE REMAINING THREE ELEMENTS OF THE CFF.

4. TARGET DESCRIPTION.

A. WHAT THE TGT IS.

B. WHAT THE TGT IS DOING.

C. NUMBER OF ELEMENTS IN THE TGT.

D. DEGREE OF PROTECTION.

E. SIZE AND SHAPE OF THE TGT.

5. METHOD OF ENGAGEMENT.

A. TYPE OF ADJUSTMENT.

1). AREA FIRE. *

2). PRECISION FIRE.

B. DANGER CLOSE.

C. MARK.

D. TRAJECTORY.

1) LOW ANGLE. *

2) HIGH ANGLE.

E. AMMUNITION.

THE CHOICE OF SHELL/FUZE COMBINATION THE OBS PREFERS TO USE IN THE FFE PHASE OF THE MISSION. THE OBS WILL IDENTIFY HIGH EXPLOSIVE BY FUZE ONLY (VT i/e, TI i/e) OTHER PROJECTILES BY PROJECTILE ONLY (WP, DPICM)

1. **SHELL. HE***

2. **FUZE. Q***

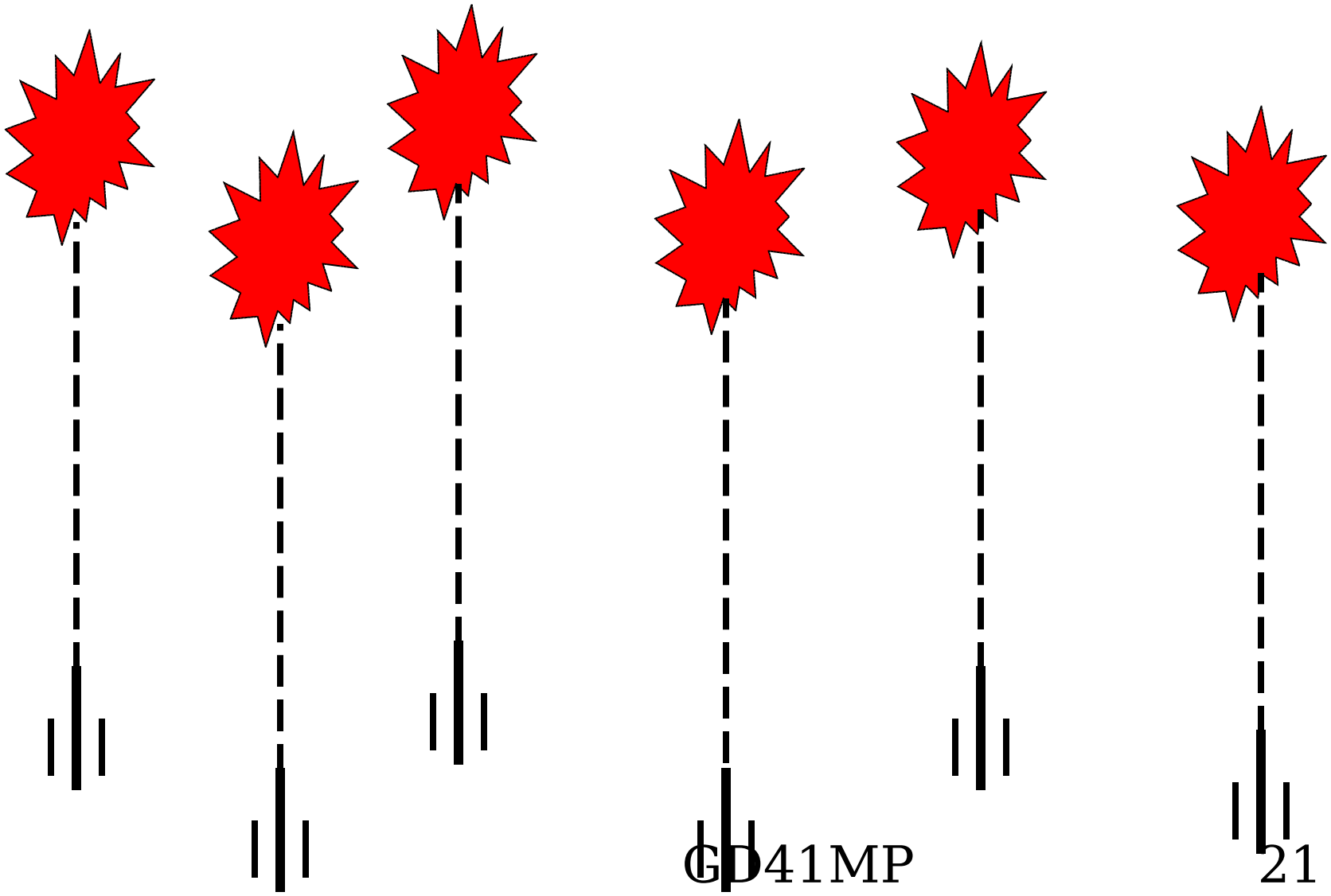
3. **VOLUME (1) ***

F. DISTRIBUTION.

PATTERN OF BURST AROUND THE TGT IN FFE.

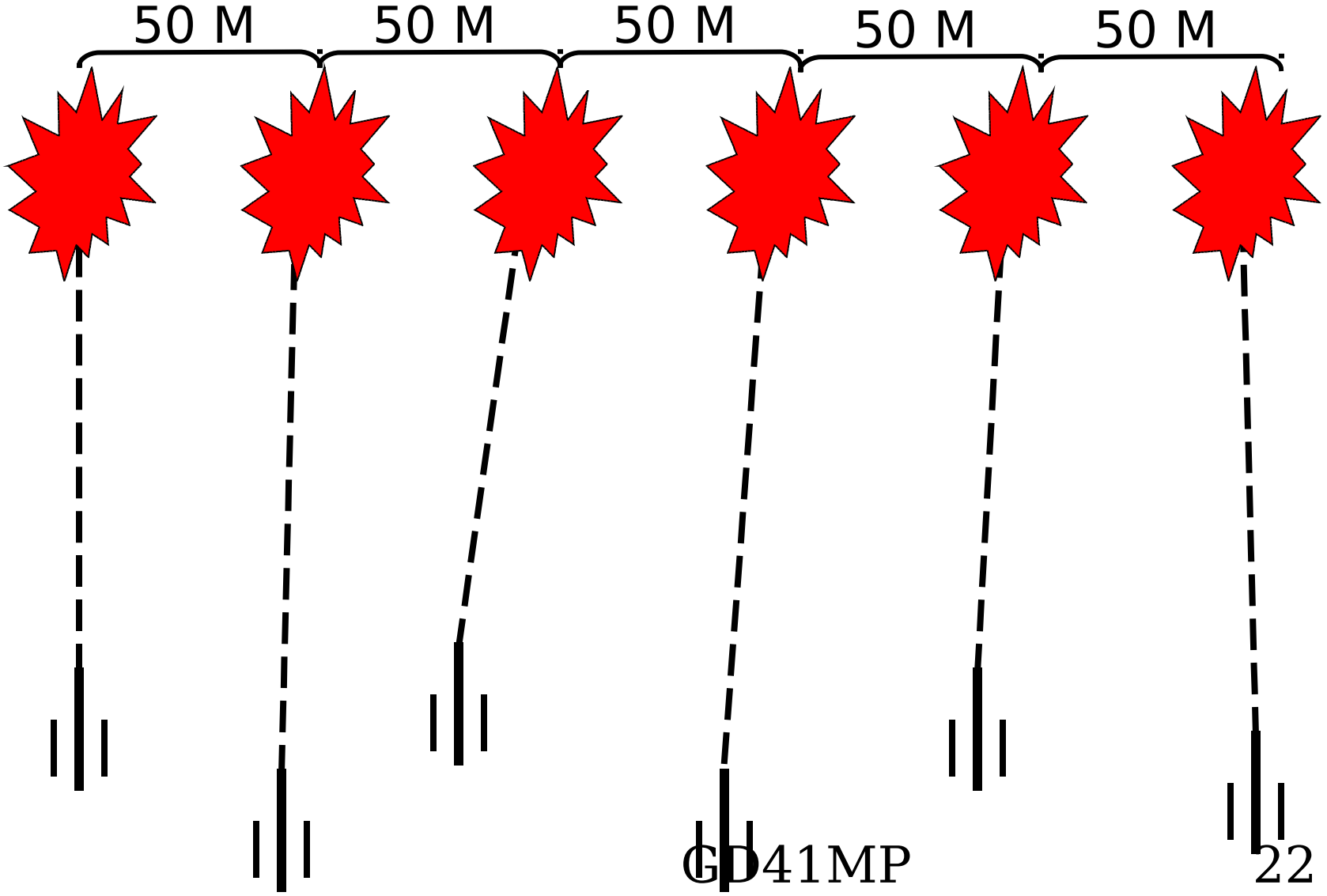
PARRALELL *

SAME PATTERN AS THE GUNLINE



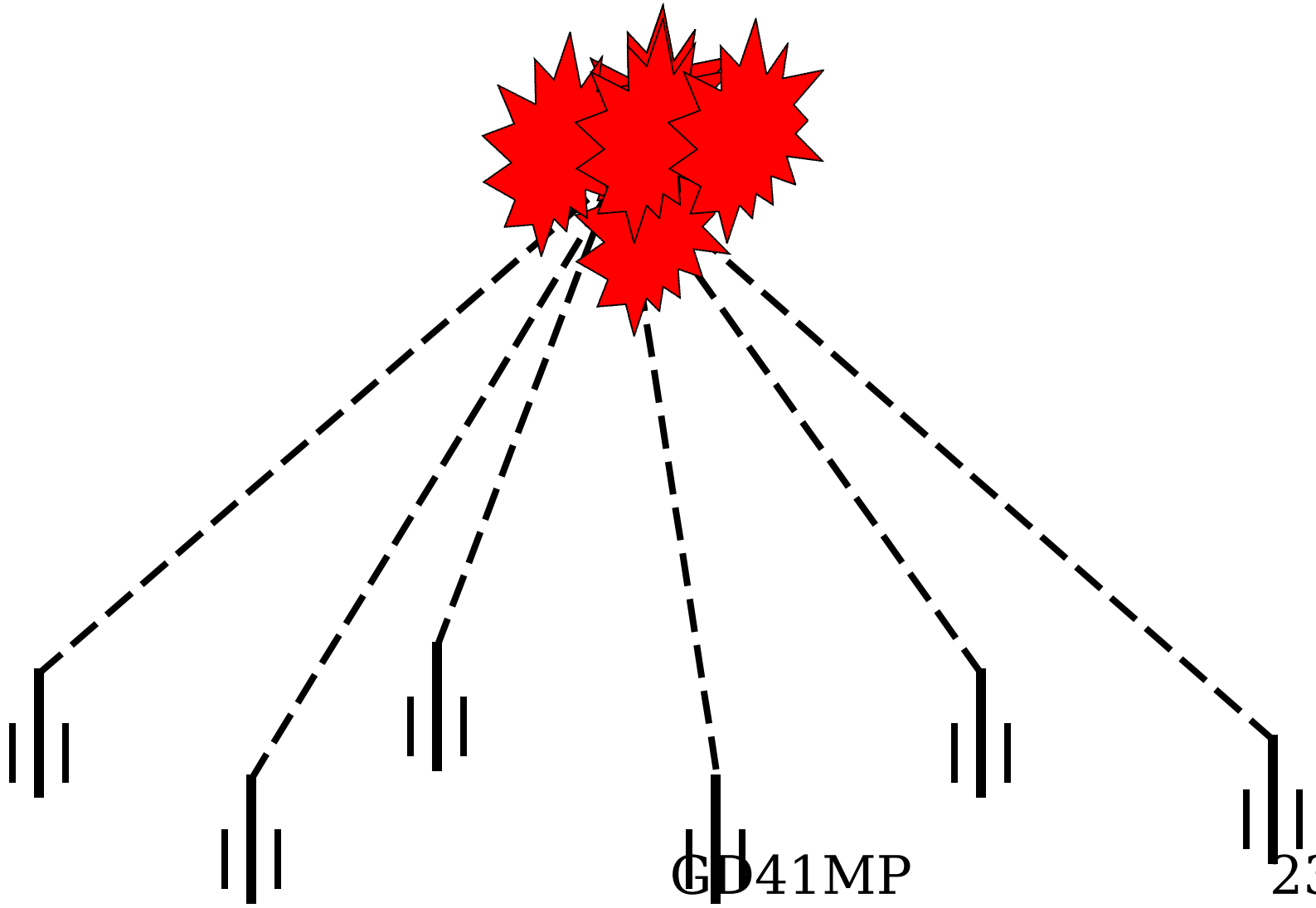
OPEN

50 METERS BETWEEN IMPACT



CONVERGED

ALL ROUNDS IMPACT AT ONE LOCATION



6. METHOD OF FIRE AND CONTROL.

A. METHOD OF FIRE.

1. ONE GUN *
2. PLT (RIGHT/LEFT) OR BTRY

B. METHOD OF CONTROL

1. WHEN READY (WR) *
2. AT MY COMMAND (AMC)
3. CANNOT OBSERVE

4. **TIME ON TARGET (TOT).**

5. **CONTINUOUS ILLUMINATION.**

6. **COORDINATED ILLUMINATION.**

7. **CONTINUOUS FIRE.**

8. **CHECK FIRING.**

9. **REPEAT.**

10. **CEASE LOADING.**

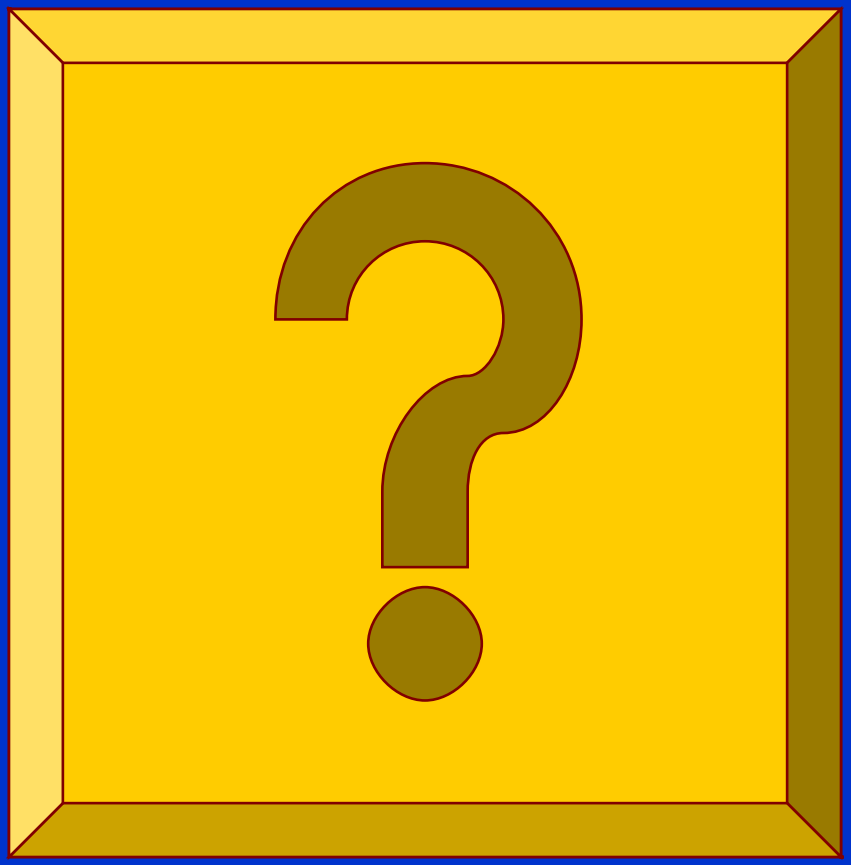
11. **FOLLOWED BY.**

(EXAMPLE CONTINUED)

N81 THIS IS W11, AF, POLAR, OVER
W11 THIS IS N81, AF, POLAR, OUT

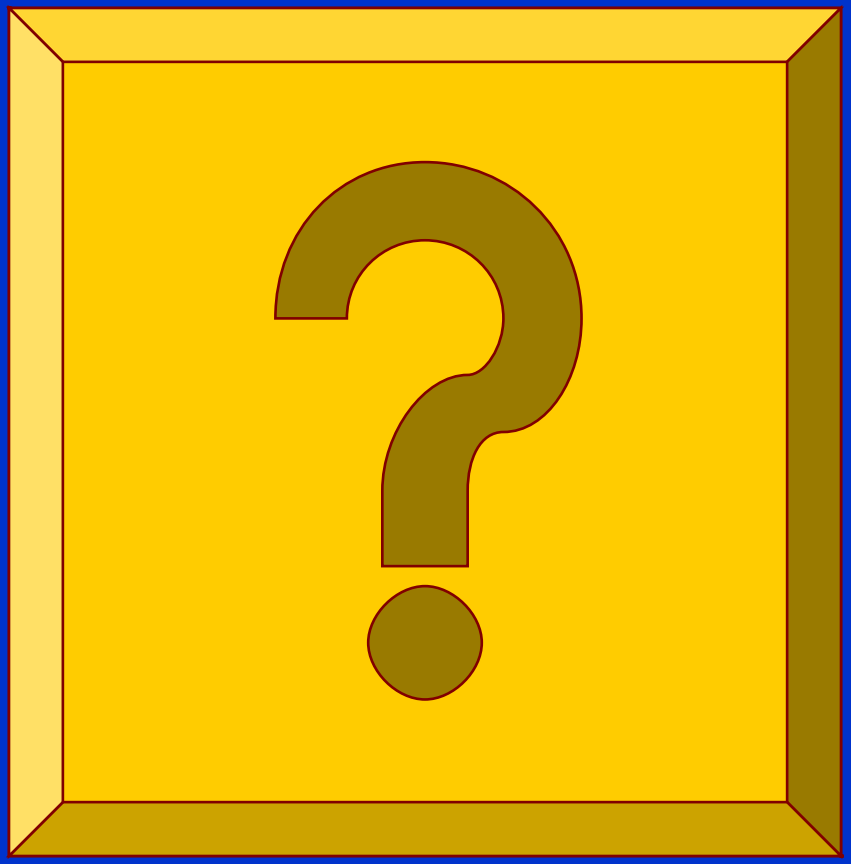
DIR 0610, DIS 2000, U40, OVER
DIR 0610, DIS 2000, U40, OUT

MORTARS W/INF, OVER
MORTARS W/INF, OUT



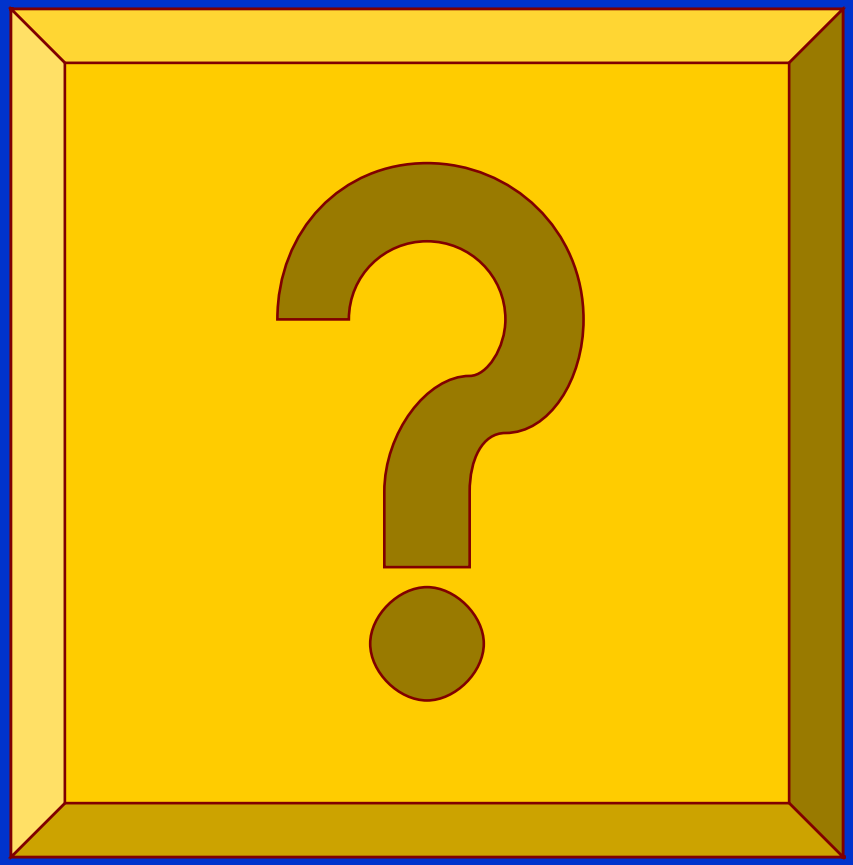
FIRE ORDER

ELEMENT	STANDARDS	FIRE ORDER
UNIT TO FIRE	BTRY	(BTRY)
ADJ ELEMENT/MOF Projectile in Adjust Lot & Charge in Adjust Fuze in Adjust	#3 1 HE AG, 4 Q	(#3 1) (HE) (AG, 4) (Q)
BASIS FOR CORRECTION	GFT	(GFT)
DISTRIBUTION	PARALLEL	(PARALLEL)
SPECIAL INSTRUCTIONS	WR	(WR)
METHOD OF FIRE	FDO ANNOUNCE	2
PROJECTILE IN EFFECT	OBS/FDO SELECT	(HE)
LOT & CHARGE IN EFFECT	SAME AS ADJUST	(AG, 4)
FUZE IN EFFECT	OBS/FDO SELECT	TI
TARGET NUMBER	NEXT AVAILABLE	GD1000

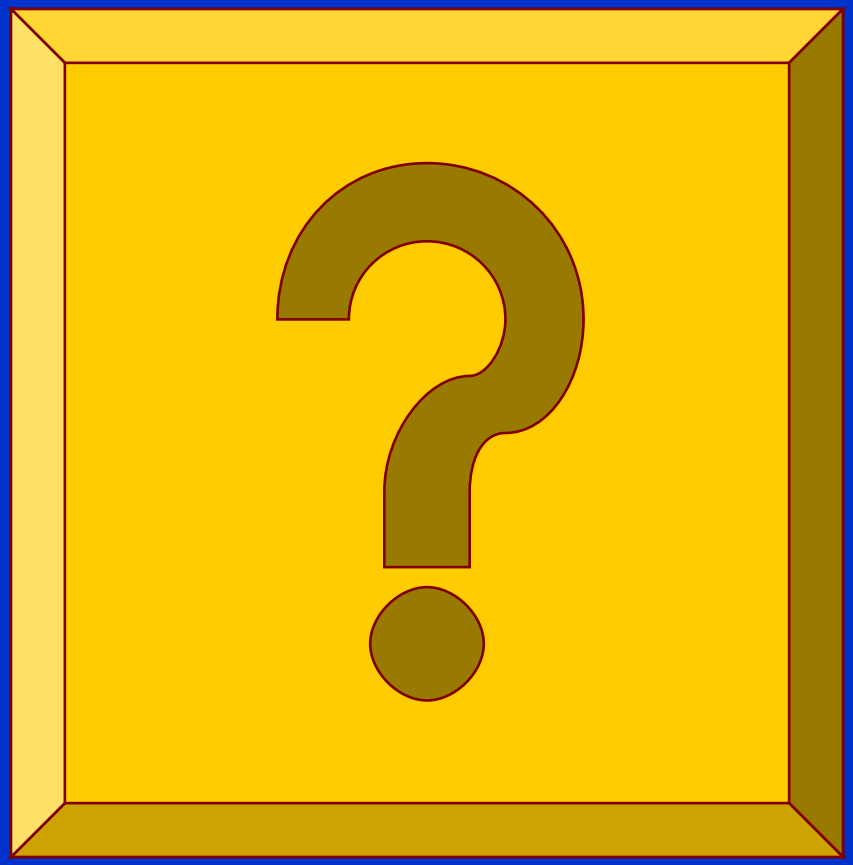


MESSAGE TO OBSERVER	
UNIT TO FIRE	N
CHANGES TO CFF	TI IN EFFECT
NUMBER OF ROUNDS	2
TARGET NUMBER	GD4100
(ADDITIONAL INFORMATION) ANGLE T Pe R TOF	 REPORT IF OVER 500 MILS = TO OR GRTR THAN 38M OBSERVER REQUEST

WHO, WHAT CHANGES, HOW MANY RDS, AND TGT NUMBER



FIRE COMMANDS		
ELEMENT	STANDARDS	COMMANDS
WARNING ORDER	(----------)	FIRE MISSION
PIECES TO FOLLOW	(----------)	BTRY ADJUST
PIECES TO FIRE	# 3	(# 3)
METHOD OF FIRE	1	(1)
SPECIAL INSTRUCTIONS	WR	(WR)
SHELL	HE	(HE)
LOT	AG	(AG)
CHARGE	(----------)	4
FUZE	Q	(Q)
FUZE SETTING	(----------)	(----------)
DEFLECTION	(----------)	(DETERMINE)
QUADRANT ELEVATION	(----------)	(DETERMINE)
METHOD OF FIRE IN EFFECT	1 Q	2 TI



GFT SETTING

GFT: A CHG: 4, LOT: AG, RG: 5000, EL

TOT DFC: R2

GFT I

GFT FUNCTIONS

1. **ELEVATION IS A FUNCTION OF RANGE.**

2. **DRIFT IS A FUNCTION OF ELEVATION.**

3. **100/R IS A FUNCTION OF RANGE.**

4. **FUZE SETTING FOR FUZE TI , VT AND TIME FLIGHT ARE A FUNCTION OF ELEVATION.**

5. **DFS (CHANGE IN FUZE SETTING) IS A FUNC OF TIME.**

THREE STEP METHOD

STEP ONE

- **PLACE THE MHL OVER THE CHART RANGE**
- **DETERMINE ELEVATION FROM THE ELEVATION GAUGE LINE**
- **DETERMINE TIME FROM THE TIME GAUGE LINE**
- **DETERMINE 100/R FROM THE MHL**

THREE STEP METHOD

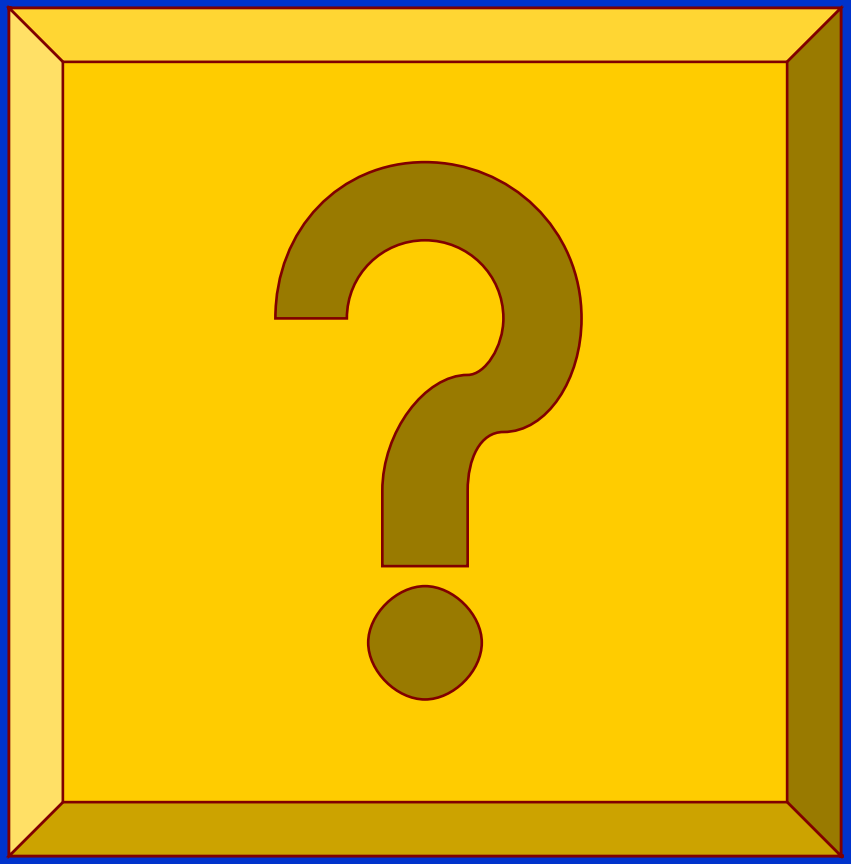
STEP TWO

- **PLACE THE MHL OVER THE ELEVATION FROM STEP ONE**
- **DETERMINE DRIFT, VT TIME AND TIME OF FLIGHT FROM THE MHL**

THREE STEP METHOD

STEP THREE

- **PLACE THE MHL OVER THE TIME FROM STEP**
- **DETERMINE DFS FROM THE MHL**



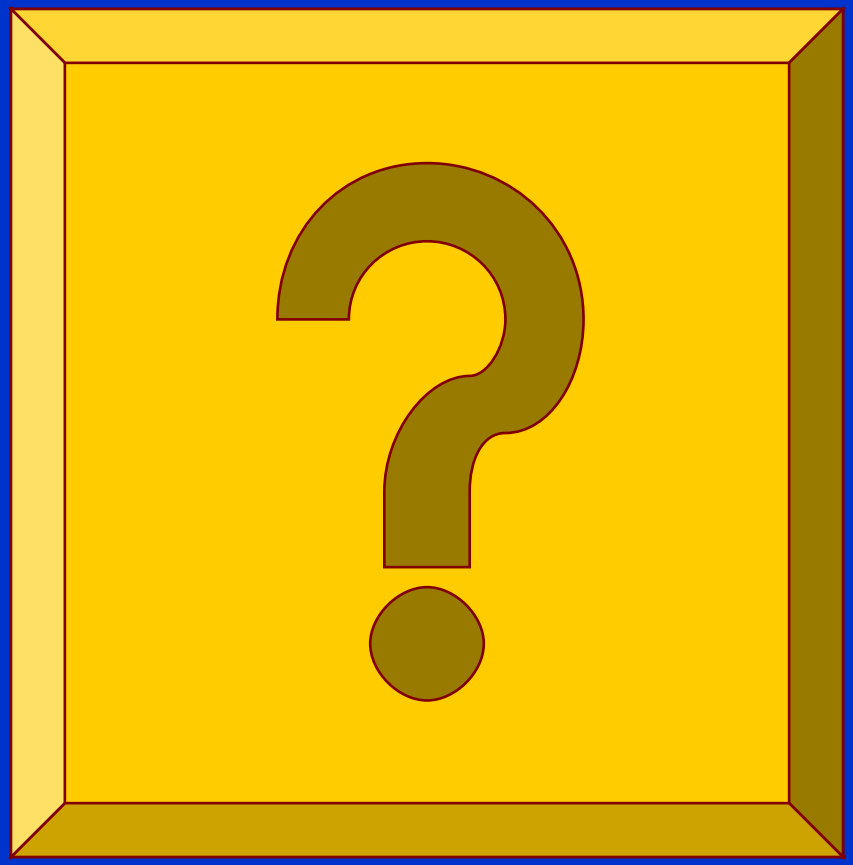
CALL FOR FIRE

N81 de W11 AF, POLAR OVER
DIR: 0610 DIST 2000 U40 OVER
MORTARS W/ INF OVER

FIRE ORDER: 2 RDS TI i/e

INITIAL CHT RG 5350 CHT DF 3470
ANGLE T 580

OBS CORR FZ TI +400 RG 5470 DF 3455
OBS CORR U40
OBS CORR D15 FFE



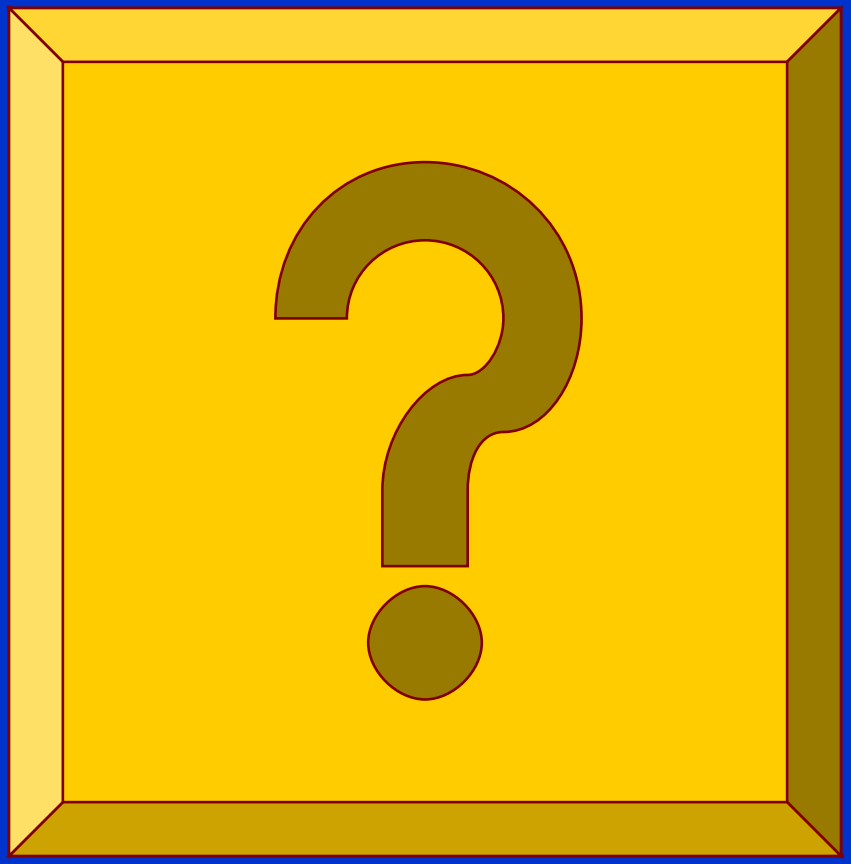
CALL FOR FIRE

N81 THIS IS W10 AF, SHIFT GD1120 OVER
DIR:0500 L200 +400 D40 OVER
T-80 TANK IN DITCH ICM i/e OVER

FIRE ORDER: 3 RDS Q i/e

INITIAL CHT RG 4420 CHT DF 2837
ANGLE T 160

- OBS CORR R80 +200 RG 4630 DF 2827
- OBS CORR -100 RG 4540 DF 2823
- OBS CORR +50 FFE RG 4590 DF 2825



GFT SETTING

1. **GFT A: CHG: 2, LOT: AG, RG: 2200, EL: 221, TI:**

2. **GFT A: CHG: 2, LOT: AG, RG: 4080, EL: 492, TI:**

1. **TOT DFC: R1 GFT DFC: R6**
2. **TOT DFC: R1 GFT DFC: R12**

CALL FOR FIRE

N81 THIS IS B88, FFE OVER
6211 3278 OVER
ZSU 23-4 EMPLACING ICM OVER

FIRE ORDER: AMC 3 RD CHG 2 VT

INITIAL CHT RG 2950 CHT DF 3000
ANGLE T 510

TAKE A BREAK!
YOU'RE ON PE TIME.

GD41MP